

Bioestatística – Prova Prática Final 2015

- Foram copiados 3 exercícios do livro **Design of Experiment: Statistical Principles of Research Design and Analysis**, 2000. (Autor Robert O. Kuehl.
- Analisar estatisticamente cada um dos exercícios usando um programa SAS. Interpretar os resultados. Coloque também o programa SAS na folha de prova. Além dos comandos e PROCs necessários, utilize nos 3 programas os seguintes comandos/PROCs: PROC PRINT, LABEL, SPLIT, PROC FORMAT, TITLE1, FOOTNOTE1, FORMAT, COMMAX.
- Não esqueça de colocar o seu nome e número USP na folha de prova. Todos os dados deverão ser colocados no Excel e importados no SAS.
- Os exercícios 1 e 2 valem 3 pontos e o 3 vale 4 pontos.

1. An irrigation experiment was conducted in a randomized complete block design in a Valencia orange grove. Six irrigation treatments were used in eight blocks of trees. The data that follow are the weight in pounds of harvested fruit from each plot.

<i>Method</i>	<i>Block</i>							
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
Trickle	450	469	249	125	280	352	221	251
Basin	358	512	281	58	352	293	283	186
Spray	331	402	183	70	258	281	219	46
Sprinkler	317	423	379	63	289	239	269	357
Sprinkler + Spray	479	341	404	115	182	349	276	182
Flood	245	380	263	62	336	282	171	98

Source: Dr. R. Roth and Dr. B. Gardner, Department of Soil and Water Science, University of Arizona.

2. A fertilizer trial on a range grass, blue grama, was conducted in a randomized complete block design by a management scientist. Five fertilizer treatments were randomly assigned to plots in each of five blocks. The data are $100 \times$ (percent phosphorus) in a plant tissue sample from each plot.

<i>Treatment</i>	<i>Block</i>				
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
No fertilizer	7.6	8.1	7.3	7.9	9.4
50 lb. nitrogen	7.3	7.7	7.7	7.7	8.2
100 lb. nitrogen	6.9	6.0	5.6	7.4	7.0
50 lb nitrogen + 75 lb P ₂ O ₅	10.8	11.2	9.0	12.9	11.6
100 lb nitrogen + 75 lb P ₂ O ₅	9.6	9.3	12.0	10.6	10.4

Source: Dr. P. Ogden, Range Management, University of Arizona.

3. The self-inductance of coils with iron-oxide cores was measured under different temperature conditions of the measuring bridge. The coil temperature was held constant. Five coils were used for the experiment. The self-inductance of each coil was measured for each of four temperatures (22° , 23° , 24° , and 25°) for the measuring bridge. The temperatures were utilized in a random order for each coil. The data are percentage deviations from a standard.

Temperature	Coil				
	1	2	3	4	5
22	1.400	0.264	0.478	1.010	0.629
23	1.400	0.235	0.467	0.990	0.620
24	1.375	0.212	0.444	0.968	0.495
25	1.370	0.208	0.440	0.967	0.495

Source: H. Hamaker (1955), Experimental design in industry. *Biometrics* 11, 257-286.

Boa prova!!!